Billing Code

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 27

[Docket No. FAA-2021-0943; Special Conditions No. 27-057-SC]

Special Conditions: Robinson Helicopter Company Model R66 Helicopter; Pressure Refueling Provisions

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Robinson Helicopter Company (RHC) Model R66 helicopter. This helicopter will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for normal category helicopters. This design feature is a pressure refueling system. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Effective [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: Monica Abboud, Propulsion Section, AIR-794, Los Angeles ACO Branch, Aircraft Certification Service, Federal Aviation Administration, 3960 Paramount Boulevard, Lakewood, California 90712; telephone (562) 627-5223; e-mail monica.m.abboud@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

On July 15, 2021, RHC applied for a change to Type Certificate No. R00015LA for the Model R66 helicopter. This change incorporates a pressure fueling system in the Model R66

helicopter. The RHC Model R66 helicopter, which is a derivative of the earlier models of the Model R66 helicopter currently approved under Type Certificate No. R00015LA, is a part 27 normal category helicopter. It is a single turbine engine helicopter with a four-passenger maximum passenger capacity and has a maximum gross weight, with no external load, of up to 2,700 pounds depending on the model configuration.

Type Certification Basis

Under the provisions of 14 CFR 21.101, RHC must show that the Model R66 helicopter, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. R00015LA or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

If the Administrator finds that the applicable airworthiness regulations (e.g., 14 CFR part 27) do not contain adequate or appropriate safety standards for the RHC Model R66 helicopter because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, or should any other model already included on the same type certificate be modified to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the RHC Model R66 helicopter must comply with the noise certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

Novel or Unusual Design Feature

The RHC Model R66 helicopter will incorporate the following novel or unusual design feature:

A pressure refueling system, which will allow for optional pressure fueling.

Discussion

RHC will modify the Model R66 helicopter by incorporating a pressure refueling system that allows for optional pressure fueling from a fueling port on the right side of the fuselage and the existing gravity system via the fuel filler cap on top of the main fuel tank. This modification provides faster, easier, and safer refueling when the engines are running and rotors turning compared to the existing fueling system located on the top of the main fuel tank. The pressure refueling system includes a crash-resistant fuel hose that runs from the fueling port on the right side to an inlet at the top of the fuel tank on the helicopter's left side. The system does not accommodate defueling.

Part 27 does not contain requirements for pressure refueling for normal category helicopters. However, 14 CFR 29.979, amendment 29-12, effective February 1, 1977, provides these requirements for transport category helicopters. Accordingly, these special conditions are based on § 29.979 to provide requirements for the inclusion of the optional pressure refueling system on the Model R66 helicopters. Section CFR 29.979 includes standards for pressure refueling and fueling provisions below fuel level on transport category rotorcraft.

Section 29.979(a) is intended to prevent hazards to ground crew, flight crew, and occupants by reducing the probability of exposure to hazardous quantities of fuel resulting from spillage and ensuring the pressure refueling/defueling system is designed to prevent overfilling the fuel tank and to withstand an ultimate load overpressure event without failure.

Section 29.979(a) requires each fueling connection below the fuel level in each tank to have a means to prevent the escape of hazardous quantities of fuel from that tank in case of malfunction of the fuel entry valve.

Section 29.979(b) requires systems intended for pressure refueling to have a means in addition to the normal means for limiting the tank content to prevent damage to the tank in case of failure of the normal means.

Section 29.979(c) requires the rotorcraft pressure fueling system (not fuel tanks and fuel tank vents) to withstand an ultimate load that is 2.0 times the load arising from the maximum pressure, including surge, that is likely to occur during fueling. The maximum surge pressure must be established with any combination of tank valves being either intentionally or inadvertently closed.

Section 29.979(d) requires the rotorcraft defueling system (not including fuel tanks and fuel tank vents) to withstand an ultimate load that is 2.0 times the load arising from the maximum permissible defueling pressure (positive or negative) at the rotorcraft fueling connection. The design by RHC does not include defueling capability.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Discussion of Comments

The FAA issued Notice of Proposed Special Conditions No. 27-21-01-SC for the RHS Model R66 helicopter, which published in the Federal Register on February 4, 2022 (87 FR 6437). The FAA received two comments from individuals in support of these special conditions.

Applicability

As discussed above, these special conditions are applicable to the RHC Model R66 helicopter. Should RHC apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only a certain novel or unusual design feature on one model of helicopter. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 27

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Robinson Helicopter Company Model R66 helicopters.

The pressure refueling system must be designed and installed as follows:

(a) Each fueling connection below the fuel level in each tank must have the means to prevent the escape of hazardous quantities of fuel from that tank in case of malfunction of the fuel entry valve.

(b) For systems intended for pressure refueling, a means in addition to the normal means for limiting the tank content must be installed to prevent damage to the fuel tank in case of failure of the normal means.

(c) The rotorcraft pressure fueling system (not fuel tanks and fuel tank vents) must withstand an ultimate load that is 2.0 times the load arising from maximum pressure, including a surge, that is likely to occur during fueling. The maximum surge pressure must be established with any combination of tank valves being either intentionally or inadvertently closed.

Issued in Kansas City, Missouri, on April 27, 2022**.**

Patrick R. Mullen,
Manager, Technical Innovation Policy Branch,
Policy and Innovation Division,
Aircraft Certification Service.

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